

Project Statement:

Create test fixture and associated calibration methods to measure the required force to optimally compress and seat rivets in the production of knives. Provide assistance to both designers and machine operators that improves the quality and consistency across a spectrum of knife families through the use of a calibration tool that allows the intermittent checking of pressing machines to ensure consistent assembly forces over a given time period.

Budget Breakdown:

Item	Description	Cost
Load Cell	Pressure Transducer	\$550
Cable	Transmits data from Load cell to display	\$50
Display	Amplification, calibration, and digital display	\$450 (\$750 with logging capabilities)
Travel		\$300
Shop Use		\$300
Materials		\$200
		Total: \$1850 (\$2150)

Time Line:

February 3rd-8th: Design Review (Phone call or in person)

March 11th: Spring Snap Shot

April 1st: Begin Final Testing

May 2nd: Design Expo

May 15th: Delivery to Client

Task List:

Currently:

Data analysis of required force on pressing of single rivet

Comparative analysis between nickel and brass knife models

Analysis of addition of compliant materials during pressing process

Research on load cells and associated equipment

Future:

Purchasing of load cell and associated equipment

Assembly and testing of portable force calibration tool

Design and fabrication of portable enclosure for calibration equipment

Detailed report on rivet analysis and material findings

Deliverables:

A detailed write up and report on our analysis and findings pertaining to the compression of a single rivet taking into account the different materials (brass and nickel) and the addition of the compliant material to the pressing process.

A force calibration tool comprised of a load cell and digital display allowing for the reading of a specific

machine's pressing force at any given time (logging capabilities are also an option), and associated instruction for use and interpretation of data.